

Draft

High Conservation Value Forests

Defining HCVFs in Massachusetts

A report to
The Bureau of Forestry
Department of Conservation and Recreation
And
The Forestry Project
Division of Fisheries and Wildlife

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Defining High Conservation Value Forests in Massachusetts

Abstract:

Defining and identifying High Conservation Value Forests (HCVF) is a condition of Forest Stewardship Council (FSC) 'Green Certification' of sustainable forestry for Massachusetts' state lands. HCVFs are forest areas that need to be appropriately managed in order to maintain or enhance identified High Conservation Values (HCVs). The definition of HCVs encompasses exceptional or critical ecological attributes, ecosystem services, and social functions. Under certification, areas identified as HCVFs may be harvested, but management activities must maintain or enhance the HCVs present.

The FSC Northeastern Region Standards provide guidance on identifying HCVs, and many HCVs are already identified and mitigated under existing Massachusetts regulations and procedures. In addition, when public land managers in Massachusetts held natural resource expert meetings to establish criteria for identifying Forest Reserves in 2004, many of the criteria chosen represented HCVs. However, FSC has issued an *Interpretation FSC Criterion 9-2* (attached as Appendix B) that "requires that the forest manager consult with stakeholders on the identification of the High Conservation Values and the management options thereof." This will be accomplished by posting the HCVF draft document on the state forestry websites, alerting experts to its existence and need for review, and presenting the document at forthcoming public meetings on forest planning.

Rare Species: FSC principles and criteria state that general forest management should conserve biological diversity and its associated values. In addition to this guidance, FSC identifies "significant concentrations" of rare species as an HCV. In Massachusetts, forest cutting plans for areas in known rare species habitats (Priority Habitats) already undergo review by the Natural Heritage and Endangered Species Program (NHESP); therefore identifying all forested sites on state lands within NHESP Priority Habitats as HCVFs would put no additional burden on forestry operations and would meet and exceed the rare species protection intentions of the Green Certification document.

Rare Ecosystems: HCVFs are intended to include forest areas that are in or contain rare, threatened or endangered ecosystems. The FSC Northeast US region report on HCVF standards recommends using natural communities with abundance ranks of S1, S2 or S3 by the state's Natural Heritage Program as the rare ecosystems. In Massachusetts, most S1-S3 community types are disturbance sensitive, and were included in the areas NHESP recommended as being in Forest Reserves. Those S1-S3 types that were not recommended for Forest Reserves need some conditioned, occasional management, and thus may be appropriate for designation as HCVF since management that maintains or enhances HCVs is allowed. The Northeast working group suggests that S1-S3 natural communities that are around 500 acres would be a target for HCVF, with smaller occurrences being protected through Principle 6.2 (conservation zones and protection areas) and/or 6.4 (representative areas). Very few of the rare types of natural communities in Massachusetts have occurrences that would approach or exceed 500 acres (although some occurrences of pitch pine scrub oak communities do). Despite their small size, designation of S1 and S2, and good quality examples S3 types outside Forest Reserves as HCVF is warranted for conservation of these unique communities. NHESP has not focused on identifying priority natural communities on existing conservation lands, therefore **further inventory on state lands** and reporting of natural communities would improve NHESP's

information about the occurrences of the different types, their condition, and their protection status.

Landscape Level Ecosystems: An additional biodiversity HCV is “large landscape level forests contained within or containing the management unit, where viable populations of most if not all naturally occurring species exist in natural patterns of distribution and abundance.” Including ‘A’ ranked occurrences of the more common types of natural communities from the NHESP database as HCVFs would be a way to meet this part of the broad definition of HCVFs. DCR and DFW have already determined that existing Old Growth will be within Forest Reserves. Forest Reserves already include many of the common forest types for their respective ecoregions which could cover at least part of the need for representatives of the large types. Any forest types not represented in Forest Reserves could be represented on state lands outside the Forest Reserves that are relatively unfragmented (i.e., provide interior forest habitat), especially those that have been continuously forested since pre-settlement times (commonly referred to as ‘1830s forest,’ although such designation needs to be shown by on-the-ground evaluation of the soils). Such areas could be designated as HCVFs (for areas without maps of 1830s forest, interior forest alone might be used). It should be also noted that “1830s forest” are considered special and should be identified as HCVFs with special forest management considerations.

High Quality Cold Water Fisheries Resources: DFW is identifying a sub-set of all streams and rivers in Massachusetts that support cold water fish species where the entire fishery is composed of native species. Forests on state lands that buffer and support habitat associated with these unique stream reaches are of high conservation value. Appropriate filter widths on state lands should be designated, when the research by the DFW Fisheries Section is complete and reviewed by DCR.

Watershed Protection Forest: Forest areas that provide basic services of nature in critical situations, such as watershed protection or erosion control are an additional HCV. Watersheds that contribute to drinking water supplies are a particular HCV that are being addressed by DCR’s Division of Watershed Protection on the Quabbin, Ware River, and Wachusett watersheds. There are other (primarily municipal) water supply areas on DCR lands, and perhaps on DFW lands, that should be identified as HCVFs, with the management of these areas focused on water supply protection, according to regulation and BMPs.

Forest Areas Critical for Subsistence of Local Communities: These are intended to be key hunting or foraging areas for endemic communities for which there is no alternative food sources, and are unlikely to occur in Massachusetts. FSC comments that they do not occur in the United Kingdom, since it is a highly developed area where most of the population has alternative sources of food. The Northeast working group suggests that is true for the northeast US as well.

Forest areas of special cultural or religious significance: DCR and DFW need to identify and interact with local groups, particularly with indigenous peoples, to ascertain culturally sensitive areas (Appendix E includes some information from the SE Bioreserve report on protecting cultural resources). There are regulations and policies about consultation with the Massachusetts Historical Commission which is responsible for historic and archeological sites, for review of cultural sites. In addition, the state archeologist maintains a list of known archeological sites and has modeled areas likely used by Native Americans before European settlement. If those areas are not included as Forest Reserves, they should be included as HCVF until their actual status is determined from studies.

Public Review: This draft HCVF report will be made available for public and expert review as part of the Forest Resource Management Planning public involvement process.

Introduction:

Defining and identifying High Conservation Value Forests (HCVF) is a condition of Green Certification for Massachusetts' state lands. Fortunately for land managers, many of the suggested High Conservation Values (HCVs) are already identified and dealt with in existing Massachusetts regulations and procedures. Under Forest Stewardship Council (FSC) certification, areas identified as HCVFs may be harvested, but management activities must maintain or enhance the HCVs present.

Background:

When the Massachusetts state lands were "Green certified" by Scientific Certification Systems (SCS) for the FSC in 2004, a condition of certification was that the agencies develop local definitions of High Conservation Values and apply that to management (Condition 2002.7 for DEM and DFW, 2002.9 for MDC) (SCS, 2004).

Forest Stewardship Council, Northeast (USA) Region Standards - definition of HCVF:

In Principle 9 of the FSC certification standard, forest managers are required to identify HCVs, to manage the forests for HCVs, and to monitor the success of this management. The definition of HCVs encompasses exceptional or critical ecological attributes, ecosystem services, and social functions. High Conservation Value Forests are forests that contain key HCVs. The designation relies solely on the presence of one or more HCVs. While all forests provide environmental and social values, HCVFs encompass exceptional or critical ecological attributes, ecosystem services and social functions. HCVFs are simply the forests where these values are found, or, more precisely, the forest area that needs to be appropriately managed in order to maintain or enhance the identified values (language from Jennings, 2004. ProForest ToolKit: HCVF for Conservation Practitioners. P. 1).

Other protections:

FSC principles and criteria include general forest management requirements. The FSC discussions recommend using protected lands, such as Forest Reserves, and zoning to assure protection of the most sensitive forest attributes. Several of these forest attributes are explicitly discussed in Principle 9, the HCVF section.

As noted in the recommendation discussion of this document (p.12), Massachusetts' statutes, regulations, and policies protect pre- and post-settlement historic sites, rare species habitat, water supplies, and Old Growth forest.

Principle 6, Environmental Impact, states that forest management should conserve biological diversity and its associated values. The discussion of HCVFs in the Northeast Regional standards refers back to various parts of Principle 6 (6.2, safeguards for rare and endangered species and habitats through zoning and protected areas and /or 6.4, protection of representative samples of existing ecosystems) and suggests that HCVFs need to be designated only where zoning and existing protected areas (Wildlands/Nature Preserves or Forest Reserves in Massachusetts) don't suffice. Although Forest Reserves may contain HCVs, HCVFs do not need to be designated as protected areas if management does not compromise the HCVs.

Principle 9 Biodiversity Values:

Given the state of knowledge of 'significant concentrations of biodiversity,' there are generally two approaches to conserving it: fine filter and coarse filter.

The *Fine filter* approach relies on identifying rare species (usually state and/or federally listed plants or animals) and protecting them and their habitats. The *Coarse filter* approach uses natural communities, where natural communities are stand-ins for total biodiversity. Natural communities are generally defined as recurring assemblages of plant and animal species, usually found in particular environmental conditions. In this approach, the types of natural communities in a state (or other region) are ranked for abundance throughout the state (S5 types are most abundant, and S1 least, details are given in Appendix D). The occurrences are then ranked for quality, with the best of the most common types (and all their constituent species) identified for conserving, and as many as possible of the least common (and their constituent species) protected. There is a sliding scale between the best of the abundant types and accepting all that remains of the least common.

Fine Filter - Rare Species: One of the HCVs is “significant concentrations” of rare species. However in Massachusetts, known occurrences of rare species listed in the Massachusetts Endangered Species Act (MESA) have a regulatory impact on forestry – forest cutting plans for areas in known rare species habitats already undergo review. Mitigation for the protection of the rare species is provided: therefore the requirements in Principle 9 of maintaining or enhancing the HCV (rare species in this case) is already being met when the recommendations from review of the forest cutting plan are followed (304 CMR 11.00 11(6) and 321 CMR 10.02 (14)). This means that identifying all areas in NHESP Priority Habitats as HCVFs would put no additional burden on forestry operations and would meet and exceed the rare species protection intentions of the Green Certification document.

Coarse Filter - Natural Communities (part 1)

An additional biodiversity HCV is “large landscape level forests contained within or containing the management unit, where viable populations of most if not all naturally occurring species exist in natural patterns of distribution and abundance” (FSC, 2004, glossary). This definition is very close to the definitions Natural Heritage Programs use for A (the best, on a scale of A-D) ranked occurrences of each type of natural community. Including A ranked occurrences of the more common types (abundance ranked S5 (demonstrably secure) and S4 (apparently secure) of natural communities from the NHESP database as HCVFs would be a way to meet this part of the broad definition of HCVFs.

Old Growth occurrences are A ranked for whatever type of natural community they represent. Most Old Growth studied to date are examples of relatively common types of natural communities, typically Spruce-Fir-Northern Hardwoods Forest, Northern Hardwoods-Hemlock-White Pine Forest or High Elevation Spruce Fir Forest, with an example of Oak-Hemlock-White Pine Forest. DCR and DFW have already determined that Old Growth will be in Forest Reserves, although DFW has not detected any Old Growth forest on its lands. There are a few non-Old Growth A and B ranked occurrences of common types in the NHESP database, which could be dealt with on an individual basis, by zoning or by calling the A ranked occurrences HCVs. NHESP has records of thirteen occurrences of eight types of common (S5 and S4) upland forest-types on ten DCR properties, with five occurrences of two types of common forested wetlands on five properties. On DFW land there are 28 occurrences of ten types of upland forests on eighteen properties, and one type of forested wetland on one property. As the NE Working Group points out in the notes for the Northeast regional standards (p. 32 in Vers. 8.1), there

really aren't many landscape level undisturbed forests in the northeast, and the most complete would not be in Massachusetts.

As part of the Forest Reserve planning process, areas with interior forest that are also 1830s forest were identified. Some are included in Forest Reserves. These 1830s/interior forests areas could be considered HCVs, and part of HCVFs. Keeping in mind that some town maps did not report woodland or forest areas on the 1830s maps, and some town maps have been lost or were not made (Harvard Forest 2002; Hall et al. 2002), there are 58,534 acres of interior, 1830s forest on DCR land, out of 2,583,322 acres or 2% (acres are "GIS acres", calculated on data in MassGIS). In addition, the planned Forest Reserves already include many of the common forest types for their ecoregions which could cover at least part of the need for representatives of the large types. If the forest types in the Forest Reserves were identified, any types not included in Forest Reserves that do occur in the 1830s/interior areas might be considered for HCVF status. For towns without 1830s forest, interior forest alone might be used. These interior, older forest areas were also identified in the BioMap report, although not to forest type.

1830s forest areas not in Forest Reserves should be considered for HCVF status because they include areas that have never been tilled which have higher biodiversity than tilled lands. However, it should be noted that 1830s forests were identified from old maps, and even restricted to currently forested areas, those are only two points of data in several hundred years - any given parcel may not have been continuously forested since European settlement. Of the areas that were continuously forested, most were woodlots and thinned repeatedly. They can be managed in ways that maintain undisturbed soils and shaded understory layers. Actual current vegetation present can provide indications of undisturbed soil, but examination of the soil structure of each area is necessary to determine actual land use history. Until individual areas are checked, the maps of 1830s/currently forested areas are the best available models of the biodiversity values found in the soils and understories of untilled forests.

Coarse Filter: Natural Communities (part 2)

Principle 9 continues discussing HCVFs to include forest areas that are in or contain rare, threatened or endangered ecosystems. The Northeast region report on HCVF standards recommends using natural communities with abundance ranks of S1, S2 or S3 by the state's Natural Heritage Program as the rare ecosystems. Massachusetts NHESP considers all types of natural communities ranked S1, S2 or S3 to be Priority Natural Communities. In Massachusetts, most S1-S3 community types are disturbance sensitive, and many were included in the areas NHESP recommended as being in Forest Reserves or patch reserves. Maps of locations of the NHESP natural community occurrences could be provided directly to DCR and most are available on MassGIS. It would be straightforward for maps of those locations on DCR land to be made available to the foresters and property managers. Those types that were excluded from the recommended Forest Reserves need some conditioned, occasional management (for example Atlantic White Cedar Swamps might be clear cut on a very long rotation for individual strips and Pitch Pine/Scrub Oak communities usually need to be managed). HCVFs allow management of the forests with HCVs as long as the HCV is maintained or enhanced. The guidelines encourage using management to maintain successional natural communities. The Northeast working group suggests that S1-S3 natural communities that are around 500 acres would be a target for HCVF, with smaller occurrences being protected through Principle 6.2 (conservation zones and protection areas) and/or 6.4 (representative areas). Very few of the rare types of natural communities in Massachusetts have occurrences that would approach or exceed 500 acres

(although some occurrences of pitch pine scrub oak communities do). Despite their small size, designation as HCVs is warranted for protection of all Massachusetts S1, S2, and S3 natural community types.

Of the 12 upland forested Natural Community types, out of 29 priority terrestrial nc types, seven are known from DSPR lands. Of the 17 forested wetland community types, out of 32 palustrine priority types, nine are known from DSPR lands. For DFW lands, the numbers are: upland seven types and 20 wetland types. The one type of priority forested natural community that occurs in intertidal estuarine conditions (of eight priority intertidal types) is not currently documented on state land. It should be noted that in general state lands have not been targets of natural community surveys. A few focused surveys on DFW land have resulted in increased numbers of records of priority natural communities. In addition, DFW has targeted some properties for acquisition that had known occurrences of priority natural communities, increasing the known occurrences on DFW land. The complete list of NHESP Priority Natural Community types with explanations of the S ranks is in Appendix D. Tables 1,2, and 3 in Appendix D have the names, state ranks, and acreages on state lands of forested NHESP Priority Natural Community types.

Other HCVs:

High Quality Cold Water Fisheries Resources: DFW is identifying a sub-set of all streams and rivers in Massachusetts that support cold water fish species where the entire fishery is composed of native species, primarily brook trout. Forests on state lands that buffer and support habitat associated with these unique stream reaches are of high conservation value. Appropriate filter widths on state lands should be designated, when the research by the DFW Fisheries Section is complete and reviewed by DCR.

Watershed protection: Forest areas that provide basic services of nature in critical situations, such as watershed protection or erosion control are an additional HCV. Watersheds that contribute to drinking water supplies are a particular HCV that has been addressed by DCR's Division of Watershed Protection (the watershed portion of the former MDC). There are other water supply areas on DCR lands that should be identified as HCVFs, with the management of them aimed at protecting the water supplies, according to regulation and BMPs.

Forest Areas critical for subsistence of local communities. these are unlikely to occur in Massachusetts. These are intended to be key hunting or foraging areas for endemic communities for which there is no alternative food sources. FSC comments that they do not occur in the United Kingdom, since it is a highly developed area where most of the population has alternative sources of food. The Northeast working group suggests that is true for the northeast US as well.

Forest areas of special cultural or religious significance

Principle 3, Indigenous People's Rights: Of the concerns for protecting rights of indigenous people, 3.3 appears to have the most relevance to Massachusetts. 3.3 states that "Sites of special cultural, ecological, economic or religious significance to indigenous peoples shall be clearly identified in cooperation with such peoples, and recognized and protected by forest managers." Page 3, FSC Principles, 2004. The NorthEast Working Group noted that "*Certification in general, particularly as addressed under Principles 2 through 5, reinforces the social and economic benefits that accrue to local communities.*"

Principle #4: Community relations and worker's rights: part 4.4.d. Significant archeological sites and sites of cultural, historical, or community significance, as identified through consultation with state archeological offices, tribes, universities, and local experts, are designated as special management zones or otherwise protected during harvest operations. (Appendix F has the FSC and NE Standards language on 3.3 and 4.4)

Meetings should be held throughout the state with local groups, particularly with indigenous peoples, to ascertain culturally sensitive areas. This has been done in the area of the SE Bioreserve, and maps of sensitive areas, similar to NHESP Priority Habitat maps were produced. To protect them, the actual sensitive areas are seldom publicized. It is likely that the communications and contact methods used in the BioReserve could be used as a model for working statewide, Appendix E includes some information from the BioReserve report on protecting cultural resources.

Appendix F includes FSC Principles 3.3 and 4.4 and the comments on them from the Northeast (US) Regional Standards.

Any projects that require funding, licenses, or permits from any state agency must be reviewed by MHC [Massachusetts Historical Commission] in compliance with Massachusetts General Laws Chapter 9, sections 26-27C. This law creates the MHC, the office of the State Archaeologist, and the State Register of Historic Places among other historic preservation programs. It provides for MHC review of state projects, State Archaeologist's Permits, the protection of archaeological sites on public land from unauthorized digging, and the protection of unmarked burials.

Cultural resources are protected from state and federally funded or approved activities under several laws including, but not limited to (modified from Fleming et al. 2005):

- M.G.L. Ch. 9 s. 26-27c (to 32) as amended (Massachusetts Historical Commission enabling legislation) <http://www.mass.gov/legis/laws/mgl/9-26.htm>; <http://www.mass.gov/legis/laws/mgl/9-27.htm>
- <http://www.sec.state.ma.us/mhc/mhcidx.htm>
- M.G.L. Ch. 38 s. 6 (Massachusetts Unmarked Burial law) <http://www.mass.gov/legis/laws/mgl/38-6.htm>
- M.G.L. Ch. 30 s 61-62h. Massachusetts Environmental Policy Act (MEPA)
- <http://www.mass.gov/legis/laws/mgl/30-61.htm> and 301 CMR 11.00 <http://www.mass.gov/envir/mepa/thirdlevelpages/meparegulations/meparegulations.htm>
- <http://www.mass.gov/envir/mepa/secondlevelpages/aboutmepa.htm>
- Section 106 of the National Preservation Act of 1966

To comply with these laws, DCR must consult with the State Historic Preservation Office whenever a state action has the potential to impact historic or archaeological resources. In Massachusetts the SHPO is the Massachusetts Historical Commission (MHC). Cultural Resource Management staff members are available to coordinate the consultation process. In planning projects and activities that are subject to MHC review, schedules must allow for a 30 day review process.

Under these regulations and DCR and DFW policies about consultation with the Massachusetts Historical Commission which is responsible for historic and archeological sites, cultural sites including archeological sites, graveyards, cellar holes, stone walls, are reviewed. In addition, the state archeologist maintains a list of known archeological sites and has provided DCR with maps of areas that meet particular modeling criteria for likely use by Native Americans before European settlement. If those areas are not included as Forest Reserves, they should be included as HCVs until their actual status is determined from studies.

Recommendations for HCVF designations:

In the NE Regional Standard, their Appendix C (and attached in Appendix C here) is a guide to the designation of HCVFs. These separate the steps of determining whether various attributes ought to be designated as HCVs or dealt with through other means. Because Massachusetts has existing regulations protecting rare species and cultural areas that DCR and DFW are already complying with and managing for, it would make practical sense to designate these as HCVs. The same would apply to public water supply areas that are on state land where the management already is for maintaining the water quality, and secondarily for timber harvest as such.

Expert meetings are encouraged to determine HCVs (especially if there are no local standards, which do exist for the Northeastern United States). Natural resource expert meetings were held to establish biodiversity value criteria for making Forest Reserves. Most of the recommendations are basically HCVs –acreage of old growth and acreage of valley bottom land, and concentrations of 1830s forest, viable rare communities, BioMap Ambystomid habitat, riparian and wetland forest, forest interior, and Living Waters CSW (Critical Supporting Watershed). Together with the Northeast standards, HCVs for biodiversity have been well defined for Massachusetts forests. However, FSC has issued an *Interpretation FSC Criterion 9-2* (attached as Appendix B) that “requires that the forest manager consult with stakeholders on the identification of the High Conservation Values and the management options thereof.” Posting this document on the state’s forestry web sites for review, calling it to the attention of forestry experts and asking for review, and addressing the HCVF ideas at the various public meetings on the forest management plans where the participants are focused on forests and represent a wide spectrum of interest in forests and forestry should important review and feedback on HCVF issues.

Meetings should be held throughout the state to determine areas with cultural or spiritual values to local communities. This information would supplement information from MHC and the state archeologist. Some of those areas have been established as Forest Reserves, some might be managed as HCVFs.

Recommended HCVs:

Rare Species:

NHESP Priority Habitats should be HCVs: forest cutting plans for such areas are already being reviewed and responses provided that maintain or enhance the species and their habitats, which meets HCV criteria. These Priority Habitats are in regulation and information exists on maps and as public GIS datalayers.

Rare ecosystems:

All Priority natural communities in NHESP's database: that is, all occurrences of types ranked S1 and S2, and good quality examples S3 types (those in the NHESP database) should be HCVs under the North East Standards. These are in the NHESP database as tracked Priority Natural Community occurrences, and can be provided to DCR and DFW as a GIS datalayer. NHESP has not focused on existing conservation lands for inventory, therefore **further inventory on state lands** and reporting of natural communities on them would improve NHESP's information about the occurrences of the different types, their condition, and their protection status. For example, DFW Forestry Project has focused on identifying Rich Mesic Forest that occurs on DFW lands, that has so far resulted in more than doubling the known acreage of Rich Mesic Forest on DFW lands. Those areas will be designated as HCVFs.

Locating and identifying Priority types of forested natural communities is time consuming. Because they are not randomly located in the landscape, it is possible to do some preliminary focusing. Models that incorporate information on habitat conditions provide some possibilities of locations for specific community types, but need to be checked on the ground. Interpreting aerial photographs again tends to provide broader possibilities than most of the specific natural communities occur in (for example, most oak forests types look about the same from aerials, but the specific types generally need to be determined on-site). Existing information, such as CSI plot information should also be reviewed for indications of presence of the uncommon types or to assist in planning site visits.

Landscape level ecosystems:

DCR has placed known Old growth in Forest Reserves: Much of the likely primary forest, 1830s forest that is interior forest that occurs on state land was placed in Forest Reserves. As mentioned earlier, records of 1830s woodlands is missing from some towns, in which case interior forest alone may need to be used until/unless other determinations of undisturbed soil can be made.

A – ranked common types of communities from NHESP GIS information could be included as HCVFs. There has not been a systematic inventory for these types of occurrences. Large Forest Reserves likely include examples of most the common types of natural communities in an area, but this **needs to be verified by inventory**. Such an inventory can be approached through existing information, such as CSI plots, preliminary interpretation of aerial photographs and modeling. These methods tend to provide guidance of where to look, rather than affirming the presence of particular types of priority natural communities.

High Quality Cold Water Fisheries Resources: A sub-set of all streams and rivers in Massachusetts that support cold water fish species where the entire fishery is composed of native species is being identified. Forests associated with these unique stream reaches are of high conservation value, and appropriate widths on state lands should be designated as HCVF when sites are known.

Critical Watersheds for drinking water supplies:

Drinking water supply areas are known to management foresters and are on maps from DEP, and available from MassGIS. DCR GIS has them mapped.

Cultural areas:

MHC and State Archeologist have maps, models, and site review.

Meetings need to be held with local communities during the regional or property specific planning about cultural and spiritual values of particular state lands. Efforts to involve Massachusetts based tribes need to be actively pursued. If there is a state-wide intertribal council, it would provide good initial contacts for identifying appropriate local leaders. DCR planners have experience, for example in the SE BioReserve, with identifying and contacting individual local groups that have interests in the state lands.

Public Review: This draft HCVF report will be made available for public review as part of the Forest Resource Management Planning public involvement process. It will be posted on the DCR web pages, with a link from the MassWildlife forestry pages, and will be made available in written copy upon request to the DCR Bureau of Forestry. The attention of possible expert reviewers should be called to the existence and location of the document, with requests for review. In addition, HCVF ideas and the draft document will be introduced at forthcoming public meetings on ecoregional planning and DCR Management District and DFW Forest Management Zone plans. Earlier meetings in the forest management planning series were well attended by a wide spectrum of private and public sector stakeholders who are keenly interested in forests and forestry in Massachusetts, and future meetings would be expected to provide good input from the mix of attendees.

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Appendix A

From Certification report: Scientific Certification Systems, Final FSC Certification Report EOEI updated 5-4-04, certification registration number SCS-FM/COC-00047N, p. 22 for DEM and DFW and p. 23 for MDC:

Condition DEM/DFW 2002.7: Within 2 years of award of certification, DEM and DFW must designate and delineate HCVF⁵ areas and develop a plan for management of these areas.

⁵ Guidance on defining High Conservation Value Forests can be found in the document "Identifying High Conservation Values at a national level: a practical guide" available from www.proforest.com.

Condition MDC 2002.9: Within 1 year of award of certification, MDC must determine what percentage of MDC lands falls under HCVF category 4 for watershed values and then prepare an amendment to management plans that formally designates HCVF areas and describes how management of these lands is consistent with maintaining or enhancing HCVF attributes.

Appendix B. FSC Principle 9

From:

http://www.fsc.org/keepout/en/content_areas/77/71/files/FSC_STD_01_001_FSC_Principles_and_Criteria_for_Forest_Stewardship_2004_04.PDF

FSC-STD-01-001 FSC Principles and Criteria for Forest Stewardship (April 2004)

9 Principle #9: Maintenance of high conservation value forests³

Management activities in high conservation value forests shall maintain or enhance the attributes which define such forests. Decisions regarding high conservation value forests shall always be considered in the context of a precautionary approach.

- 9.1 Assessment to determine the presence of the attributes consistent with High Conservation Value Forests will be completed, appropriate to scale and intensity of forest management.
- 9.2 The consultative portion of the certification process must place emphasis on the identified conservation attributes, and options for the maintenance thereof.
- 9.3 The management plan shall include and implement specific measures that ensure the maintenance and/or enhancement of the applicable conservation attributes consistent with the precautionary approach. These measures shall be specifically included in the publicly available management plan summary.
- 9.4 Annual monitoring shall be conducted to assess the effectiveness of the measures employed to maintain or enhance the applicable conservation attributes.

From FSC Appendix A, Glossary

High Conservation Value Forests: High Conservation Value Forests are those that possess one or more of the following attributes:

- a) forest areas containing globally, regionally or nationally significant : concentrations of biodiversity values (e.g., endemism, endangered species, refugia); and/or large landscape level forests, contained within, or containing the management unit, where viable populations of most if not all naturally occurring species exist in natural patterns of distribution and abundance
- b) forest areas that are in or contain rare, threatened or endangered ecosystems
- c) forest areas that provide basic services of nature in critical situations (e.g., water-shed protection, erosion control)
- d) forest areas fundamental to meeting basic needs of local communities (e.g., subsistence, health) and/or critical to local communities' traditional cultural identity (areas of cultural, ecological, economic or religious significance identified in cooperation with such local communities). 2

Appendix B (continued, FSC Principle 9)

From: http://www.fsc.org/en/about/documents/Docs_cent/2,14

FSC Policy and Standards Unit Advice Note

Subject: Interpretation of FSC Criterion 9-2

File name FSC-ADV-30-901 Interpretation of Criterion 9-2

Advice sought on What consultation requirements does FSC Criterion 9-2 imply for forest managers and certification bodies?

PSU Advice

1. FSC Criterion 9-2 requires that the forest manager should consult with stakeholders on the identification of the High Conservation Values, and the management options thereof. During evaluation for certification the certification body should consult to confirm whether the manager's consultation was adequate.



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FSC Policy and Standards Unit Advice Note

Subject:	Interpretation of FSC Criterion 9-2
File name	FSC-ADV-30-901 Interpretation of Criterion 9-2
File master location	[new server at FSC-IC – location to be specified]
Advice note written by:	M.G.Wenban-Smith
Date:	28-APR-2003
Status	Approved by Head of PSU
References	FSC Principles and Criteria for Forest Stewardship (2000) Board paper BM28-17 FSC Criterion 9-2
Advice sought on	What consultation requirements does FSC Criterion 9-2 imply for forest managers and certification bodies?
PSU Advice	<ol style="list-style-type: none">1. FSC Criterion 9-2 requires that the forest manager should consult with stakeholders on the identification of the High Conservation Values, and the management options thereof. During evaluation for certification the certification body should consult to confirm whether the manager's consultation was adequate.
Basis for advice	<ol style="list-style-type: none">1. FSC Criterion 9.2 states: <i>"The consultative portion of the certification process must place emphasis on the identified conservation attributes, and options for the maintenance thereof"</i>.2. Different FSC members currently interpret this criterion in two rather different ways, relating to their understanding of the expression 'certification process' – either that it puts the obligation on the certification body to carry out consultation, or that it puts the obligation on the forest manager to carry out consultation.3. At the request of the FSC Board the Policy and Standards Unit sought the advice of the members of the original Principle 9 working group in order to confirm the intention of the Criterion. The consultation clarified that the intention of the Principle 9 working group was i) that the forest manager should consult with stakeholders on the identification of the HCVs, and the management options thereof, and ii) the cb should

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subsequently evaluate whether the consultation was adequate.

4. The FSC Board has agreed that henceforth this shall be considered the correct interpretation of this FSC Criterion.

5. Further background information regarding the consultation is contained in the board paper BM28-17 FSC Criterion 9-2.

Appendix C. North East United States, Regional Standards, Principle 9.

available on line from

http://www.fscus.org/images/documents/2006_standards/ne_9.0_NTC.pdf

PRINCIPLE #9: MAINTENANCE OF HIGH CONSERVATION VALUE FORESTS

Management activities in high conservation value forests shall maintain or enhance the attributes which define such forests. Decisions regarding high conservation value forests shall always be considered in the context of a precautionary approach.

Note: Appendix C includes an overview to the designation of HCVF under the Northeast Standards.

High Conservation Value Forests are those that possess one or more of the following attributes:

- a) **Forest areas containing globally, regionally or nationally significant concentrations of biodiversity values (e.g., endemism, endangered species, refugia); and/or large landscape level forests, contained within, or containing the management unit, where viable populations of most if not all naturally occurring species exist in natural patterns of distribution and abundance**

Notes:

Forests with globally, regionally, or nationally significant concentrations of biodiversity

The forests of the northeast contain globally, regionally, or nationally significant concentrations of biodiversity value that are rare and widely dispersed; most have been identified by state Natural Heritage Programs. Examples include the riverbank areas of the St. John's River in Maine, the "Yellow Bog area" within the Nulhegan watershed of northeastern Vermont, and the Southeastern Massachusetts Bioreserve. More common in the northeast are discrete areas of biodiversity value (i. e., they generally contain one rare natural community or an endangered species or two) that are not part of a network of isolated but interconnected habitats that would lead to HCVF status at the landscape scale.

The Northeastern Working Group recommends a stepwise approach to identification of HCVF with significant concentrations of biodiversity. First: identify and protect discrete areas of biodiversity importance as required by Criteria 6.1, 6.2, and 6.4. Second: maintain, enhance, or restore the ecological functions and values of the surrounding stands and landscapes in accordance with Criterion 6.3 and protect other ecological values as required under Criteria 6.5-6.9 and Principle 10. Third: if steps one and two are inadequate to protect the overall biodiversity values of the forest or if the values are considered to be of exceptional significance, then the forest may warrant designation as an HCVF.

Appendix C. NE Regional Standards, Principle 9 (continued).

Forests with natural patterns of species distribution and abundance

The forests of the northeast have been manipulated by Euro-Americans for the past three hundred years. Much of the region that is now forested was cleared for agriculture, and that which was not has been harvested several times. As a result of this human intervention there are few large landscape-level forests where viable populations of most if not all naturally occurring species exist in natural patterns of distribution and abundance. The best examples are in public and/or private conservation ownership such as the Big Reed Preserve in Maine, parts of the White Mountain National Forest in New Hampshire and Maine, and parts of the Adirondack and Catskill Parks in New York.

There are areas of a few thousand acres in northern Maine where species composition and structure closely approach natural conditions due to light harvest history and a relatively long time (30-50 years) since the last harvest. However, the Maine Forest Biodiversity Project noted that in northern and eastern Maine forest landscape planning units average roughly 25,000 acres in size (C.A. Elliott, ed. 1999. Biodiversity in the Forests of Maine, Guidelines for Land Management. University of Maine Cooperative Extension, Orono, Maine). Thus, there are likely very few areas that meet the definition of a "large landscape-level forest" adopted by regional experts.

b) Forest areas that are in or contain rare, threatened or endangered ecosystems

Note: Rare, threatened, or endangered (hereafter collectively referred to as "rare") ecosystems belong to a subset of natural communities state-ranked as S1, S2, or S3 or G1, G2, or G3 by state Natural Heritage programs. Rare ecosystems may also include outstanding examples of more common (ranked S4 or S5) community types. Rare natural communities that are not extensive in area may be adequately protected under Criterion 6.2 and/or 6.4. Communities or assemblages of communities that are extensive in area are best protected as HCVF.

- *In the Northeast, rare communities or assemblages of communities dominated by a rare community that approach or exceed 500 acres (200 ha) in area are normally delineated and managed as rare ecosystems under HCVF.*
- *Other factors that may be considered include, but are not limited to,*
 - *Relative rarity of S3-ranked communities (which may range from 21 to 100 examples in a state),*
 - *Distinctiveness in terms of size (a smaller or larger threshold than 500 acres might be appropriate, depending on the size range of the community type), quality (particularly lack of human disturbance), or location within the community's geographic range,*
 - *Vulnerability to degradation, and*
 - *Proximity to protected examples of the same ecosystem type.*
- *Due to their rarity in the Northeast, intact old growth forests (see glossary), which represent an extremely rare stage of what may be a common natural community type, normally qualify as "rare, threatened, or endangered ecosystems" under the HCVF definition.*

Appendix C. NE Regional Standards, Principle 9 (continued).

- c) Forest areas that provide basic services of nature in critical situations (e.g., watershed protection, erosion control)**

Note: Examples of forest areas that provide basic services of nature in critical situations in the northeast are watersheds that supply water for municipalities (examples may

include Quabbin Reservoir in Massachusetts, the Croton Reservoir in New York and Sebago Lake in Maine). There are few areas within the forest regions of New York and New England that provide basic services of nature in critical situations above and beyond the ecosystem services provided by all forests.

- d) Forest areas fundamental to meeting basic needs of local communities (e.g., subsistence, health) and/or critical to local communities' traditional cultural identity (areas of cultural, ecological, economic or religious significance identified in cooperation with such local communities).**

Note: While important to the social and economic well being of local communities, the northeast contains few, if any, areas where the cultural identity and fundamental subsistence of local communities have been critically linked to a particular forest area. Certification in general, particularly as addressed under Principles 2 through 5, reinforces the social and economic benefits that accrue to local communities.

The region's forests are important to the social identity and economic well being of local communities, especially across the "Northern Forest." This is a region of New England and New York where forest industries and forest-based recreation have long been a dominant economic force (the Northern Forest includes much of northern and eastern Maine, northern New Hampshire, northern Vermont, as well as the Adirondack and Tug Hill regions of New York.) While HCVF designation could be generally applied to much of the Northern Forest region, the region's large size (one of the largest areas of continuous forest in the United States) and complexity of markets for forest products (especially long distance hauling of different species and grades of logs and chips to different communities, states, and into nearby Canada) makes it difficult to associate a particular forest with a specific community's well being. Maintaining socially beneficial, economically healthy, and ecologically viable forests in accordance with FSC Principles will help maintain the strength and vitality of forest-dependent communities across the region.

Appendix C. NE Regional Standards, Principle 9 (continued).

9.1. Assessment to determine the presence of the attributes consistent with High Conservation Value Forests will be completed, appropriate to scale and intensity of forest management.

9.1.a. Appropriate to scale and intensity of forest management, a comprehensive assessment to determine the presence of attributes consistent with High Conservation Value Forests is conducted.

9.1.b. As part of the assessments and consultations required in Criteria 3.3, 4.4, 6.1, 6.2, and 8.2, the forest owner or manager has identified, mapped, established protection measures, and evaluated the social impacts of management for the appropriate HCVF attributes.

9.2. The consultative portion of the certification process must place emphasis on the identified conservation attributes, and options for the maintenance thereof.

Note: FSC understands that Criterion 9.2 is an instruction to FSC-accredited certification bodies and that no indicators are required.

9.3. The management plan shall include and implement specific measures that ensure the maintenance and/or enhancement of the applicable conservation attributes consistent with the precautionary approach. These measures shall be specifically included in the publicly available management plan summary.

Applicability Note: The applicability of the precautionary principle and the consequent flexibility of forest management vary with the size, configuration, and tenure of the HCVF;

a) More flexibility is appropriate where HCV forest is less intact, larger in area, has a larger area-to-perimeter ratio, and its tenure is assured over the long term.

b) Less flexibility is appropriate where HCV forest is more intact, covers a smaller area, has a smaller area-to-perimeter ratio, and future tenure is uncertain.

9.3.a. Areas designated as HCVFs are managed over the long term to assure that both the quality of their HCVF attributes and their area are not reduced.

9.3.b. Where the high conservation value crosses ownership boundaries or where the maintenance of the conservation value(s) depends on the proximity of or connectivity with other HCVFs, forest owners or managers coordinate conservation efforts with owners and managers of other HCVFs in their landscape.

9.3.c. The precautionary approach (see Glossary) is adopted when the forest owner or manager has determined that potential management actions are capable of degrading the high conservation values identified.

9.4. Annual monitoring shall be conducted to assess the effectiveness of the measures employed to maintain and enhance the applicable conservation attributes.

Note: The Working Group considers this Criterion sufficiently explicit and measurable. Indicators are not required.

Appendix C. NE Regional Standards, Principle 9 (continued).

Revised Final FSC US NE Regional Standard V9.0
2/4/05

APPENDIX C

A GUIDE TO THE DESIGNATION OF HCVF WITHIN THE NORTHEAST STANDARD

- 1) Assessment of HCVF attributes.
 - a) Ecological elements: Indicators 6.1a, 6.2, 8.2
 - b) Cultural elements: 3.3, 4.4
 - c) Synthesis of all elements/HCVF determination. P9, definition of HCVF, 9.1
- 2) Protection of individual elements that may contribute to HCVF designation:
 - a) Rare, threatened, and endangered (R, T, and E) species and natural communities: 6.2.a
 - i) For extensive (> 500 ac.) R, T, and E natural communities, presumption is that these should be protected as HCVF under P9, attribute B.
 - ii) See also Note under HCVF attribute A.
 - b) Old Growth Stands:
 - iii) Presumption is that there is protection as representative sample area under 6.4. See applicability note under criterion and 6.4.b.
 - iv) If protection as a sample area is not warranted, ecological functions and values are maintained (see 6.4) on these forests.
 - c) Old Growth Forests:
 - v) Presumption is that these forests are protected as HCVF. See applicability note under 6.3, applicability note under criterion and 6.4, and indicator 6.4.b.
 - vi) If HCVF designation is not warranted, old growth forests are protected as a representative sample area under 6.4.
- 3) HCVF
 - a) Attribute A: significant concentrations of individual elements of biodiversity/natural patterns of distribution and abundance.
 - i) If protection of individual elements under 6.2 and 6.4 and management of the surrounding forest matrix according to 6.3 will not conserve the landscape value, then HCVF designation is warranted.
 - ii) Presumption is that old growth forests are also protected as HCVF.
- 4) Attribute B: Threatened or endangered ecosystems
 - i) Defined as S1-S3 natural communities > 500 ac, consistent with old growth forest threshold
 - ii) Presumption is that these sites are protected as HCVF, smaller areas are covered by 6.2.
- 5) Attribute C: Basic services of nature in critical situations.
 - i) Municipal watersheds given as primary examples.
- 6) Attribute D. Fundamental to local communities
 - i) The interconnectedness of many communities and across the landscape makes the direct link between one forest and one community difficult. NEWG emphasizes maintenance of social and economic benefits under Principles 2-5 as key to protecting this attribute.

Appendix D. NHESP Priority Natural Communities in Massachusetts and their ranks.

Terrestrial	Provi- sional Rank	Palustrine	Provi- sional Rank
Maritime Juniper Woodland/Shrubland	S1	Calcareous Basin Fen	S1
Maritime Oak - Holly Forest/Woodland	S1	Coastal Interdunal Marsh/Swale	S1
Maritime Pitch Pine On Dunes	S1	Estuarine Intertidal: Sea-Level Fen	S1
Sandplain Grassland	S1	Alluvial Atlantic White Cedar Swamp	S2
Sandplain Heathland	S1	Atlantic White Cedar Bog	S2
Scrub Oak Shrubland	S1	Black Ash Swamp	S2
Serpentine Outcrop Community	S1	Black Ash-Red Maple-Tamarack Calcareous Seepage Swamp	S2
Calcareous Forest Seep Community	S2	Black Gum Swamp	S2
Calcareous Rocky Summit/Rock Outcrop Community	S2	Black Gum-Pin Oak-Swamp White Oak "Perched" Swamp	S2
Dry Riverside Bluff	S2	Calcareous Pondshore/Lakeshore	S2
Hickory - Hop Hornbeam Forest/Woodland	S2	Calcareous Seepage Marsh	S2
High Elevation Spruce - Fir Forest/Woodland	S2	Calcareous Sloping Fen	S2
Maritime Dune Community	S2	Coastal Atlantic White Cedar Swamp	S2
Maritime Erosional Cliff Community	S2	Coastal Plain Pondshore	S2
Maritime Rock Cliff Community	S2	Cobble Bar Forest	S2
Pitch Pine - Scrub Oak Community	S2	High-Terrace Floodplain Forest	S2
Ridgetop Pitch Pine - Scrub Oak Community	S2	Inland Atlantic White Cedar Swamp	S2
Yellow Oak Dry Calcareous Forest	S2	Kettlehole Level Bog	S2
Circumneutral Rocky Summit/Rock Outcrop Community	S2S3	Major-River Floodplain Forest	S2
Calcareous Rock Cliff Community	S3	Northern Atlantic White Cedar Swamp	S2
Calcareous Talus Forest/Woodland	S3	Riverside Seep	S2
Circumneutral Rock Cliff Community	S3	Small-River Floodplain Forest	S2
Circumneutral Talus Forest/Woodland	S3	Spruce-Tamarack Bog	S2
Coastal Forest/Woodland	S3	Transitional Floodplain Forest	S2
Maritime Beach Strand Community	S3	Acidic Graminoid Fen	S3
Maritime Shrubland Community	S3	Acidic Shrub Fen	S3
Rich, Mesic Forest Community	S3	Alluvial Red Maple Swamp	S3
Riverside Rock Outcrop Community	S3	High-Energy Riverbank	S3
Black Oak - Scarlet Oak Forest/Woodland	S3S4	Kettlehole Wet Meadow	S3
		Level Bog	S3
		Riverine Pointbar And Beach	S3
		Spruce-Fir Boreal Swamp	S3

NHESP Priority Natural Community types

Estuarine			
Estuarine Intertidal: Brackish Tidal Marsh	S1	Estuarine	
Estuarine Intertidal: Fresh/Brackish Tidal Shrubland	S1	Estuarine Intertidal: Coastal Salt Pond Marsh	S2
Estuarine Intertidal: Fresh/Brackish Tidal Swamp	S1	Estuarine Subtidal: Coastal Salt Pond	S2
Estuarine Intertidal: Freshwater Tidal Marsh	S1	Marine Intertidal: Rocky Shore	S2
Estuarine Intertidal: Fresh/Brackish Flats	S2	Estuarine Intertidal: Salt Marsh	S3
Estuarine Subtidal: Fresh/Brackish Flats	S2	Estuarine Intertidal: Saline /Brackish Flats	S3

NHESP

Natural Community Ranks

Each type of natural community is assigned an “element rank”, based on the species element ranking developed for the Natural Heritage system by The Nature Conservancy and maintained by NatureServe. The state rank (S) reflects the rarity and threat within Massachusetts. Every state assigns its own “S” rank based on the rarity and threat within that state, with regard to regional conditions. Global ranks for communities are not included because each state has its own classification system and the US National Vegetation Classification system uses a different system.

State Ranks

S1 = Typically 5 or fewer occurrences, very few remaining individuals, acres, or miles of stream or especially vulnerable to extirpation in Massachusetts for other reasons.

S2 = Typically 6 - 20 occurrences, few remaining individuals, acres, or miles of stream or very vulnerable to extirpation in Massachusetts for other reasons.

S3 = Typically 21 - 100 occurrences, limited acreage, or miles of stream in Massachusetts.

S4 = Apparently secure in Massachusetts.

S5 = Demonstrably secure in Massachusetts

SU = Status unknown in Massachusetts.

SH = No extant sites known in Massachusetts, but it may still exist.

Table 1. Forested Terrestrial Priority Community occurrences on state land

Terrestrial	State Rank	NHESP Recommended Designation	NHESP acres on DSPR property	Number of DSPR properties	NHESP acres on DFW property	Number of DFW properties
Black Oak - Scarlet Oak Forest/Woodland	S3S4				52	2
Calcareous Forest Seep Community	S2	Patch Reserve				
Calcareous Talus Forest/Woodland	S3	Patch Reserve	34	2	34	1
Circumneutral Talus Forest/Woodland	S3	HCVF	83	3	29	4
Coastal Forest/Woodland	S3		34	3	306	2
Hickory - Hop Hornbeam Forest/Woodland	S2	HCVF	25	3	6	1
High Elevation Spruce - Fir Forest/Woodland	S2	HCVF	268	1		
Maritime Juniper Woodland/Shrubland	S1	Patch Reserve				
Maritime Oak - Holly Forest/Woodland	S1	Patch Reserve	90	3	1	1
Maritime Pitch Pine On Dunes	S1	Patch Reserve				
Rich, Mesic Forest Community	S3	HCVF	120	4	237	6
Yellow Oak Dry Calcareous Forest	S2	Patch Reserve				

Table. Forested Wetland Priority Community occurrences on state land.

Palustrine	State Rank	NHESP Recommended Designation	NHESP acres on DSPR property	Number of DSPR properties	NHESP acres on DFW property	Number of DFW properties
Alluvial Red Maple Swamp	S3	HCVF	35	1	3	1
Atlantic White Cedar Bog	S2	HCVF			44	1
Black Ash Swamp	S2	HCVF	3	1	2	1
Black Ash-Red Maple-Tamarack Calcareous Seepage Swamp	S2	HCVF	3	1	118	3
Black Gum Swamp	S2	HCVF			3	1
Black Gum-Pin Oak-Swamp White Oak "Perched" Swamp	S2	Patch Reserve			408	1
Cobble Bar Forest	S2	Patch Reserve				
High-Terrace Floodplain Forest	S2	Patch Reserve			19	1
Major-River Floodplain Forest	S2	Patch Reserve	22	1	80	5
Small-River Floodplain Forest	S2	Patch Reserve			2	1
Spruce-Fir Boreal Swamp	S3	HCVF	7	1	24	1
Spruce-Tamarack Bog	S2	HCVF	125	1		
Transitional Floodplain Forest	S2	Patch Reserve			26	2
Alluvial Atlantic White Cedar Swamp	S2	HCVF			33	2

Coastal Atlantic White Cedar Swamp	S2	HCVF	494	2	1339	4
Inland Atlantic White Cedar Swamp	S2	HCVF	50	2		
Northern Atlantic White Cedar Swamp	S2	HCVF	84	1		

Table 3. Forested Estuarine NHESP Priority Natural Community Type

Estuarine	State Rank	NHESP Recommended Designation	NHESP acres on DSPR property	Number of DSPR properties	NHESP acres on DFW property	Number of DFW properties
Estuarine Intertidal: Fresh/Brackish Tidal Swamp	S1	Patch Reserve	0	0	0	0

Appendix E. Cultural Values

From SE BioReserve Management plan.

Cultural Resource Protection Guidelines

5.2.3 Historical and Archeological Resources

MHC is the State Historic Preservation Office and is responsible for administering State Register properties and other historic and archaeological assets. The MHC is also the office of the State Archaeologist, whose duties are to compile and maintain an inventory of archaeological sites, to issue permits for archaeological investigations on lands in which the Commonwealth has an interest, and, in accordance with Massachusetts General Laws, Chapter 38, Section 6, notify the Commission on Indian Affairs if a possible Native American burial site has been identified.

5.2.3.3 Issues and Recommendations

Management of the resources within the BioReserve should incorporate the appropriate protection procedures to insure that the cultural resource base is not adversely affected by daily operations and visitor use. The cultural resources including archaeological remains and historic buildings and remnants are finite resources. They represent unique records of past events and behavior that are part of our communal heritage. Typically, prehistoric sites resulted from short-term sporadic occupation. There is seldom much material left, and under the best of circumstances sites are difficult to excavate and interpret properly. They are extremely fragile and easily damaged. Archaeological sites cannot be repaired or fixed, and their loss is analogous to the extinction of a plant or animal species. Once these resources are gone, they are gone forever.

The preservation of cultural resources within the BioReserve can easily be accomplished through continued cooperation and teamwork. Good planning and early communication about proposed projects will insure smooth project implementation. Beyond the dictates of legal compliance and resource protection, the cultural history of the BioReserve should be explored, developed and offered to the public.

In general, good management of the cultural resources will include:

- Planning of projects, both capital and normal operations, that takes into account the potential effects on historic and archaeological resources
- Partners should (state agencies must) notify the MHC of any project that has the potential for impacting the historical, architectural, archaeological or cultural qualities of a property. Should partners undertake a project under federal funding or requiring federal oversight and/or permits, Section 106 of the National Historic Preservation Act of 1966 as amended (16 USC 470 et seq.) also requires consultation with the MHC.

- For projects planned at the BioReserve on state lands, staff should consult with DPR's archaeologist and preservation planners in the Planning, Design and Development of Historic Resources.
- For most projects, the DCR Project Planning, Design and Development staff will require a project description, a site plan and photographs for review. No physical work can occur until one of the following outcomes has been achieved:
- Determination by DCR Project Planning, Design and Development staff that the project constitutes a categorical exemption and is consistent with DEM preservation standards
- Determination of "no effect" or "no adverse effect" from the MHC
- Successful completion of any mitigation outlined in the Memorandum of Agreement (MOA) between DCR and MHC (in cases of determination of "adverse effect"). If Project Planning, Design and Development or the MHC determines that the project will result in an "adverse impact" to cultural and/or archaeological properties, the project proponent will work with OHR and the MHC to avoid, minimize or mitigate the impact. The Office of Project Planning, Design and Development will initiate and manage those activities that will minimize or mitigate adverse impacts to cultural and archaeological resources on the state properties.
- Reporting of discoveries of artifacts or soil anomalies, observing the effects of active recreation to sensitive areas, and monitoring for looting of known archaeological sites (as identified by appropriate staff)
- Prohibition of the use of metal detectors on Commonwealth lands
- Maintenance of confidentiality regarding the specific locations of prehistoric sites (the Freedom of Information Act does not apply)
- Improvements to National Register listed or eligible properties in accordance with the Secretary of the Interior's Standards for the Treatment of Historic Properties
- Continued recognition of significant historic buildings, objects and landscapes through their nomination to the National Register of Historic Properties